

U.S. Patent Application Serial No. 09/688,837
Reply to OA dated March 15, 2005

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-5 (canceled).

Claim 6 (currently amended): A pin connection structure for use in a floating type brake disc assembly comprising:

a hub;

an annular disc which is concentrically disposed around said hub with a clearance therebetween,

said hub and said disc having plural sets of semicircular connecting dents opening toward said clearance to thereby form respective inserting holes;

a hollow pin having a shaft portion which does not have a step on an outer surface of an intermediate portion inserted into each of said inserting holes with a washer fitted on an end portion of said hollow pin which is subsequently caulked radially outward at the end portion by a roller for fixing said washer in position, an inner diameter portion of the end portion being only slightly expanded by caulking the hollow pin, and wherein the expansion does not exceed an outer diameter of a shank of the pin, wherein an outer peripheral surface of the hollow pin is not beveled but has an angular shape,

a spring is provided between a washer at a chalking side of the hollow pin and a washer at a hub/disc side of the hollow pin,

wherein said hollow pin is made of a metal having a surface-treated layer, and

wherein ~~said hollow pin an arc surface is formed in advance into a rounded or arced convex shape~~ in the end portion of the pin in at least a part of its inner periphery to the extent that the end portion has no sharply bent edge on which the caulking pressure is applied, said arc surface remaining after caulking by a roller,

wherein said metal is an aluminum alloy or a ferrous metal,

wherein said surface-treated layer is an oxide corrosion-resistant film and one of chromium plating and nickel plating.

Claims 7-10 (Canceled)

Claim 11 (withdrawn): A method of connecting at least two members by a pin, comprising the steps of:

disposing the members one on top of the other, each of the members having an inserting hole;

inserting a hollow pin into the inserting hole of each of the members;

caulking an end position of said hollow pin radially outward to thereby fix said members together,

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wherein said hollow pin is made of a metal having a surface-treated layer and is formed into a convex shape in at least part of said end portion, and
wherein said caulking is made by rolling a roller over said end portion of said hollow pin.

Claim 12 (withdrawn): The method according to claim 11, wherein said metal is an aluminum alloy.

Claim 13 (withdrawn): The method according to claim 11, wherein said metal is a ferrous material.

Claim 14 (withdrawn): The method according to claim 12, wherein said surface-treated layer is an oxide corrosion-resistant film.

Claim 15 (withdrawn): The method according to claim 13, wherein said surface-treated layer is one of chromium plating and nickel plating.

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Claim 16 (withdrawn): A method of connecting a floating type brake disc assembly by pins, comprising the steps of:

disposing a hub and an annular disc in a concentric relationship with each other with a clearance therebetween, each of said hub and said annular disc having plural sets of semicircular connecting dents opened toward said clearance to thereby form inserting holes;

fitting a washer onto one end portion of each of said hollow pins;

caulking said one end portion of each of said hollow pins radially outward to thereby fix said washer in position,

wherein each of said hollow pins is made of a metal having a surface-treated layer and is formed into a convex shape in at least part of said end portion, and

wherein said caulking is made by rolling a roller over said one end portion of each of said hollow pins.

Claim 17 (withdrawn): The method according to claim 16, wherein said metal is an aluminum alloy.

Claim 18 (withdrawn): The method according to claim 16, wherein said metal is a ferrous material.

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Claim 19 (withdrawn): The method according to claim 17, wherein said surface-treated layer is an oxide corrosion-resistant film.

Claim 20 (withdrawn): The method according to claim 18, wherein said surface-treated layer is one of chromium plating and nickel plating.